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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(54) Title: THIOKETALS AND THIOETHERS FOR INHIBITING THE EXPRESSION OF VCAM-1

(57) Abstract: Thioketals and thioethers are provided that inhibit the expression of VCAM-1, and which can be used in the treatment of VCAM-1 mediated diseases including inflammatory disorders, cardiovascular diseases, ocular diseases, autoimmune diseases, neurological disorders, and cancer. The compounds also can be used to treat hyperlipidemia and/or hypercholesterolemia.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C323/20 C07C323/60 C07H15/203 A61K31/70 A61P29/00
A61P3/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C C07H A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data, EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 51662 A (ATHEROGENICS, INC., USA) 19 November 1998 (1998-11-19) * the whole document, in particular Table 1, pages 72-81 * --- -/--	1-23, 28-38, 40-42, 44-50, 52-54, 56-58, 60-62, 64-66, 68-70

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

23 August 2001

Date of mailing of the international search report

14.11.2001

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INTERNATIONAL SEARCH REPORT

Inventor International Application No

PCT/US 01/09049

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 418 648 A (HOECHST A.-G., FED. REP. GER.) 27 March 1991 (1991-03-27) * page 39, example 37; page 40, example 38; page 43, example 6 *	1,9,14, 28,30
Y	the whole document	1-23, 28-38, 40-42, 44-50, 52-54, 56-58, 60-62, 64-66, 68-70
Y	WO 98 51289 A (MEDFORD RUSSELL M ;SOMERS PATRICIA K (US); ATHEROGENICS INC (US)) 19 November 1998 (1998-11-19) cited in the application	1-23, 28-38, 40-42, 44-50, 52-54, 56-58, 60-62, 64-66, 68-70
Y	the whole document	
Y	US 5 512 595 A (REGNIER GILBERT ET AL) 30 April 1996 (1996-04-30)	1-23, 28-38, 40-42, 44-50, 52-54, 56-58, 60-62, 64-66, 68-70
Y	the whole document	
Y	DE MEGLIO, P. ET AL: "New derivatives of clofibrate and probucol. Preliminary studies on hypolipemic activity" FARMACO, ED. SCI. (1985), 40(11), 833-44, XP001015770	1-23, 28-38, 40-42, 44-50, 52-54, 56-58, 60-62, 64-66, 68-70
	the whole document	

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INTERNATIONAL SEARCH REPORT

In' stional Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>WO 00 28332 A (ATHEROGENICS, INC., USA) 18 May 2000 (2000-05-18)</p> <p>* the whole document, in particular page 24, Table 1 *</p> <p>-----</p>	<p>1-23, 28-38, 40-42, 44-50, 52-54, 56-58, 60-62, 64-66, 68-70</p>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/09049

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 36-38,40-42,44-50,52-54,56-58,60-62,64-66,68-70 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see further information PCT/ISA/210

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-23,28-38,40-42,44-50,52-54,56-58,60-62,64-66,68-70

Compounds of formula (I), claim 1; pharmaceutical compositions comprising them; their pharmaceutical uses for diseases mediated by VCAM-I.

2. Claims: partially: 24,39,43,51,55,59,63,67,71

Compounds of formula (II), claim 24, wherein X = O; their pharmaceutical uses for diseases mediated by VCAM-I.

3. Claims: partially: 24,39,43,51,55,59,63,67,71; completely: 25-27

Compounds of formula (II), claim 24, wherein X = S, SO or SO₂; their pharmaceutical uses for diseases mediated by VCAM-I.

4. Claims: partially: 24,39,43,51,55,59,63,67,71

Compounds of formula (II), claim 24, wherein X = CH₂; their pharmaceutical uses for diseases mediated by VCAM-I.

5. Claims: partially: 24,39,43,51,55,59,63,67,71

(V) Compounds of formula (II), claim 24, wherein X = NH; their pharmaceutical uses for diseases mediated by VCAM-I.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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